UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Helmut Konopa
Application Number:	10/560,156
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Group Art Unit:	3744
Examiner:	Filip Zec
Title:	REFRIGERATION DEVICE COMPRISING CONTROLLED DE-HUMIDIFICATION

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APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellant hereby files an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 12-36 are pending in the present application. Claims 1-11 were canceled. The final rejections of claims 12-36 are being appealed.

Claims 12 and 21 are independent.

(4) STATUS OF AMENDMENTS

There are no outstanding Amendments.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

An exemplary embodiment of the present invention, as recited by, for example, independent claim 12, is directed to a no-frost refrigeration device (FIG. 1), comprising:

at least one storage compartment (e.g., 1)(page 4, lines 10-11);

an evaporator (e.g., 5) which is alternately activated and deactivated located in a chamber (e.g., 8) separated from said storage compartment (e.g., 1)(page 4, lines 12-20 and 25-30);

a fan (e.g., 9) for circulating air between said storage compartment (e.g., 1) and said evaporator (e.g., 5) chamber (e.g., 8)(page 4, lines 20-24 and 27-30); and

a control circuit (e.g., 10) which makes an average circulation power of said fan (e.g., 9) variable during an activation phase of said evaporator (e.g., 5) based on at least one air conditioning parameter (page 2, line 26-33; and 4, lines 25-35).

In this manner, the present invention provides a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

Claim 13 depends from claim 12 and recites including said fan (e.g., 9) can be switched off temporarily during said activated phase of said evaporator (e.g., 5) (page 2, lines 14-21).

Claim 14 depends from claim 13 and recites said control circuit (e.g., 10) controlling the operation of said evaporator (e.g., 5) and said fan (e.g., 9) set up to intermittently operate said fan (e.g., 9) during said activated phase of said evaporator (e.g., 5) (page 2, lines 14-21).

Claim 15 depends from claim 14 and recites a selector switch on which a duty cycle can be set for said intermittent operation of said fan (e.g., 9) (page 2, lines 23-26).

Claim 16 depends from claim 14 and recites said control circuit (e.g., 10) coupled to at least one air conditioning sensor (e.g., 13) that records the at least one air conditioning parameter and said control circuit (e.g., 10) regulates a duty cycle as a function of the at least one air conditioning parameter recorded by said sensor (e.g., 13) (page 2, lines 26-33).

Claim 17 depends from claim 12 and recites said activation phase of said evaporator (e.g., 5) and said fan (e.g., 9) can be set to different non-zero speeds (page 3, lines 1-3).

Claim 18 depends from claim 17 and recites said control circuit (e.g., 10) for controlling the operation of said evaporator (e.g., 5) and said fan (e.g., 9) is set to operate said fan (e.g., 9) at one of a plurality of selectable non-zero speeds when said evaporator (e.g., 5) is activated (page 3, lines 1-9).

Claim 19 depends from claim 18 and recites a selector switch on which a speed for operation of said fan (e.g., 9) can be set (page 3, lines 4-9).

Claim 20 depends from claim 18 and recites said control circuit (e.g., 10) coupled to at least one air conditioning sensor (e.g., 13) that records the at least one air conditioning parameter and said control circuit (e.g., 10) regulates the speed of said fan (e.g., 9) using the at least one air conditioning parameter recorded by said sensor (e.g., 13) (page 3, lines 1-9).

An exemplary embodiment of the present invention, as recited by, for example, independent claim 21, is directed to a method for operating a refrigeration device, including

at least one storage compartment (e.g., 1) (page 4, lines 10-11);

an evaporator (e.g., 5) which is alternately activated and deactivated located in a chamber (e.g., 8) separated from said storage compartment (e.g., 1) (page 4, lines 12-20 and 25-30);

a fan (e.g., 9) for circulating air between said storage compartment (e.g., 1) and said evaporator (e.g., 5) chamber (e.g., 8) (page 4, lines 20-24 and 27-30);

a control circuit (e.g., 10) which makes an average circulation power of said fan (e.g., 9) variable during an activation phase of said evaporator (e.g., 5) (page 2, lines 26-33; page 4, lines 25-35), comprising the steps of:

a) estimating a moisture value in said storage compartment (e.g., 1) (page 3, lines 15-16);

b) selecting a circulating power for said fan (e.g., 9) as a function of said estimated moisture value (page 3, lines 17-18); and

c) operating said fan (e.g., 9) at said selected circulating power (page 3, line 19).

Claim 22 depends from claim 21 and recites selecting said circulating power to be lower, the higher said estimated moisture value (page 1, lines 32-35; page 2, lines 1-12).

Claim 23 depends from claim 21 and recites switching said fan (e.g., 9) off temporarily during said activated phase of said evaporator (e.g., 5) (page 2, lines 14-16).

Claim 24 depends from claim 21 and recites controlling the operation of said evaporator (e.g., 5) and intermittently operating said fan (e.g., 9) during said activated phase of said evaporator (e.g., 5) (page 2, lines 17-21).

Claim 25 depends from claim 21 and recites sensing at least one air conditioning parameter and regulating a duty cycle as a function of at least one sensed air conditioning parameter (page 2, lines 26-33).

Claim 26 depends from claim 21 and recites setting said activation phase of said evaporator (e.g., 5) and said fan (e.g., 9) to different non-zero speeds (page 3, lines 1-3).

Claim 27 depends from claim 21 and recites controlling the operation of said evaporator (e.g., 5) and said fan (e.g., 9) and operating said fan (e.g., 9) at one of a plurality of selectable non-zero speeds when said evaporator (e.g., 5) is activated (page 3, lines 1-9).

Claim 28 depends from claim 12 and recites wherein the at least one air conditioning parameter is a moisture value of one of ambient air and air in the at least one storage compartment (e.g., 1) (page 2, lines 23-33).

Claim 29 depends from claim 12 and recites wherein the at least one air conditioning parameter is an estimated moisture value of one of ambient air and air in the at least one storage compartment (e.g., 1) (page 2, lines 23-33).

Claim 30 depends from claim 12 and recites wherein the at least one air conditioning parameter is one of a temperature of ambient air outside the no-frost refrigeration device, a humidity of the ambient air outside the no-frost refrigeration device, and a humidity of air in the at least one storage compartment (e.g., 1) (page 2, lines 23-33).

Claim 31 depends from claim 12 and recites wherein the control circuit (e.g., 10) makes the average circulation power of said fan (e.g., 9) variable during the activation phase of said evaporator (e.g., 5) based on the at least one air conditioning parameter and a predefined target value of a humidity of air in the at least one storage compartment (e.g., 1) (page 3, lines 3-9; FIG. 2).

Claim 32 depends from claim 21 and recites wherein the circulating power for said fan (e.g., 9) is selected as the function of said estimated moisture value and a predefined target value of a humidity of air in the at least one storage compartment (e.g., 1) (page 3, lines 3-9).

Claim 33 depends from claim 21 and recites selecting said circulating power to be higher, the lower said estimated moisture value (page 2, lines 1-12; page 3, lines 1-9 and 17-18; and page 6, lines 1-9).

Claim 34 depends from claim 21 and recites wherein the control circuit (e.g., 10) decreases the circulation power of the fan (e.g., 9) during the activation phase of the evaporator (e.g., 5) when the estimated moisture value is greater than a moisture value constant, and increases the circulation power of the fan (e.g., 9) during the activation phase of the evaporator (e.g., 5) when the estimated moisture value is less than the moisture value constant (page 2, lines 1-12; page 3, lines 1-9 and 17-18; and page 6, lines 1-9).

Claim 35 depends from claim 12 and recites wherein the control circuit (e.g., 10) decreases the average circulation power of the fan (e.g., 9) during the activation phase of the evaporator (e.g., 5) when the moisture value is greater than a moisture value constant (page 2, lines 1-12; page 3, lines 1-9 and 17-18; and page 6, lines 1-9).

Claim 36 depends from claim 12 and recites wherein the control circuit (e.g., 10) selectively decreases the average circulation power of the fan (e.g., 9) during the activation phase of the evaporator (e.g., 5) when the moisture value is greater than a moisture value constant, and increases the average circulation power of the fan (e.g., 9) during the activation phase of the evaporator (e.g., 5) when the moisture value is less than the moisture value constant (page 2, lines 1-12; page 3, lines 1-9 and 17-18; and page 6, lines 1-9).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

a. Whether claims 12, 13, 17, 18, and 20 are anticipated under 35 U.S.C. § 102(b) by the Whipple, III reference (U.S. 5,711,159).

b. Whether claims 14-16 and 19 are unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference in view of the Shima et al. reference (U.S. 5,931,011).

c. Whether claims 21-23 and 26-32 are unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference in view of the Kelly et al. reference (U.S. 6,508,408).

d. Whether claims 24 and 25 are unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference, the Kelly et al. reference, and further in view of the Shima et al. reference.

e. Whether claims 33 and 34 are unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference, the Kelly et al. reference, and further in view of the Pesko reference (U.S. Patent No. 6,290,140).

f. Whether claims 35 and 36 are unpatentable under 35 U.S.C. § 103(a) the Whipple, III reference and the Pesko reference.

(7) ARGUMENT

a. Claims 12, 13, 17, 18, and 20 are NOT anticipated under 35 U.S.C. § 102(b) by the Whipple, III reference (U.S. 5,711,159).

In the Office Action, claims 12, 13, 17, 18, and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by the Whipple, III reference (U.S. 5,711,159).

Appellant respectfully traverses this rejection.

Appellant respectfully submits that the Whipple, III reference does not disclose the features of the claimed invention including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12. As explained above, these features are important for providing a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Whipple, III reference very clearly does not disclose these features. Indeed, the Whipple, III reference very clearly fails to disclose at least a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12.

As the Office Action points out, the Whipple, III reference mentions that the ambient condition sensor 175 provides an input signal corresponding to ambient conditions, such as temperature and humidity, to the controller 165. However, Appellant respectfully submits that the Whipple, III reference does not disclose, either explicitly or implicitly, a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12. Indeed, the Whipple, III reference is completely silent with respect to whether the control circuit makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as claimed.

Appellant respectfully notes that, for purposes of establishing a rejection under 35 U.S.C. § 102, a claim is anticipated *only* if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...] The

identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131; emphasis added.

In this case, the identical invention clearly is not disclosed, either expressly or inherently, in the Whipple, III reference. Appellant respectfully submits that the Office Action makes a leap from a mere mention of the ambient condition sensor 175 providing an input signal corresponding to ambient conditions, such as temperature and humidity, to the controller 165, to the assertion that the Whipple, III reference shows making an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

Contrary to the assertions in the Office Action, the Whipple, III reference very clearly does not disclose, either expressly or inherently, a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12.

Contrary to the Response to Arguments of the final Office Action and the Advisory Action, Appellant respectfully submits that the claims are distinguished from the prior art in terms of structure rather than function since the claims clearly recite a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

Appellant respectfully submits that the control circuit of the Whipple, III reference is not capable of making an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited in claim 12, without modification.

Hence, Appellant respectfully submits that the Whipple, III reference very clearly does not disclose, either expressly or inherently, a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12.

Appellant respectfully requests withdrawal of this rejection.

b. Claims 14-16 and 19 are NOT unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference in view of the Shima et al. reference (U.S. 5,931,011).

Claims 14-16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Shima et al. reference (U.S. 5,931,011).

Appellant respectfully traverses this rejection.

Appellant respectfully submits that none of the applied references discloses or suggests the features of the claimed invention including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12, from which claims 14-16 and 19 depend. As explained above, these features are important for providing a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Whipple, III reference very clearly does not teach or suggest these features. The Shima et al. reference does not remedy the deficiencies of the Whipple, III reference. Indeed, the Office Action does not rely on the Shima et al. reference for these features of claim 12.

Moreover, none of the applied references discloses or suggests at least the features of claims 14-16 and 19.

Contrary to the assertions in the Office Action, the Shima et al. reference is silent with respect to whether the evaporator 13 is in an activation phase when the cabinet fan 18 is intermittently operated.

As clearly shown in Figure 3, neither the compressor 14 nor the condenser 15 is in an activation phase when the cabinet fan 18 is intermittently operated. Instead, both the

compressor 14 and the condenser 15 are deactivated while the cabinet fan 18 is intermittently operated. As shown in Figure 2, the compressor 14 and the condenser 15 are part of the loop that includes the evaporator 13. Since the driving circuit 22 is in communication only with the compressor 14, it appears that the evaporator 13 also would be deactivated when the cabinet fan 18 is intermittently operated, as shown in Figure 3.

Hence, the Shima et al. reference does not disclose said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan *during said activated phase of said evaporator*, as recited in claim 14.

Moreover, the Office Action makes a conclusory statement that such would have been obvious "in order to achieve a device capable of regulating a duty cycle based on an air conditioning parameter, and therefore provide a refrigerator that operates more efficiently and therefore more economically." See, e.g., Office Action at Page 4.

Appellant respectfully submits that such a conclusory statement is insufficient to provide a prima facie case for obviousness because the Office Action fails to provide an adequate rationale for combining the prior art as required by KSR International v. Teleflex Inc. 82 U.S.P.Q. 2d 1385 (2007).

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F.3d 977, 988 (CA Fed. 2006) cited with approval in KSR).

The Shima et al. reference does not recognize the aforementioned problems with the conventional devices and would suffer from the very same problems of the conventional art described in the present application.

In stark contrast to the teachings of the Whipple, III reference in view of the Shima et al. reference, independent claim 12 recites a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

The Response to Arguments of the final Office Action asserts that the Shima reference "states that in order "to provide a low temperature storage cabinet the operation of electric fan in the cabinet is controlled based on an air conditioner parameter (difference in pressure between upper and lower compartments of the cabinet, col. 1, line 40) to reduce consumption of the electric power without causing any problem discussed above" (col. 1, lines 37-44), thus the motivation for combining Whipple and Shima is clearly present." Additionally, the final Office Action states that the Shima reference "is used solely to provide the teachings of an intermittently operable evaporator fan, thus whether the compressor is simultaneously working with the fan is not pertinent to the claimed matter which was rejected."

Appellant respectfully notes that the rejection acknowledges that the Whipple, III reference does not specifically disclose a no-frost refrigeration device, including a control circuit controlling the operation of an evaporator and a fan set up to intermittently operate a fan during an activated phase of an evaporator (as per claim 14); a method, including controlling the operation of an evaporator.

Appellant respectfully submits that claim 14 recites said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan ***during said activated phase*** *of said evaporator*. Hence, contrary to the assertions in the Office Action, these features clearly are relevant to the claims.

Moreover, Appellant respectfully submits that if the Shima reference "is used solely to provide the teachings of an intermittently operable evaporator fan" then the alleged combination fails to disclose said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan *during said activated phase of said evaporator*, as recited in claim 14.

Appellant respectfully requests withdrawal of this rejection.

c. Claims 21-23 and 26-32 are NOT unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference in view of the Kelly et al. reference (U.S. 6,508,408).

Claims 21-23 and 26-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Kelly et al. reference (U.S. 6,508,408).

Appellant respectfully traverses this rejection.

Appellant respectfully submits that one of ordinary skill in the art would not have modified the Whipple, III reference in view of the Kelly et al. reference as alleged by the Office Action. Indeed, the Examiner may not rely upon the Kelly et al. reference under 35 U.S.C. § 103 because the Kelly et al. reference is non-analogous art.

The Response to Arguments of the final Office Action asserts that both the Whipple, III reference and the Kelly et al. reference teach a component of a climate control system, be it an energy-efficient refrigerator control system, as described in the Whipple, III reference, or a fog prevention system for a vehicle. The final Office Action asserts that since the Appellant is claiming a no-frost refrigeration device, it is safe to say that both the teachings of the Whipple, III reference and the Kelly et al. reference are in the same field of endeavor as the Appellant's claimed invention.

Contrary to the assertions in the Office Action, the Kelly et al. reference clearly is not within the field of Appellant's endeavor.

First, Appellant respectfully submits that the teachings of the Whipple, III reference are not relevant to an analysis of whether the Kelly et al. reference is non-analogous art to the present invention.

To qualify as analogous art, a reference must either be (1) within the field of Applicants endeavor, or if not, (2) the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Second, Appellant respectfully submits that the Kelly et al. reference clearly is not within the field of Appellant's endeavor.

In the present instance, the field of Appellant's endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, NOT simply any climate control system.

In stark contrast, the Kelly et al. reference is within the completely different and unrelated field of windglass fog prevention methods for a vehicle climate control system. The field of endeavor of windglass fog prevention methods for a vehicle climate control system clearly is different from the field of endeavor of no-frost refrigerators. Indeed, the Office Action appears to acknowledge this distinction between these different fields of endeavor. See, e.g., final Office Action at page 8, lines 15-18.

Appellant respectfully submits that one of ordinary skill in the art would consider the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, to be in a completely different field of endeavor than climate control systems for preventing windglass fogging in automobiles.

For at least the foregoing reasons, the Kelly et al. reference clearly is not within the field of Appellant's endeavor.

As set forth above, a reference that is not within the field of Appellant's endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole.

Properly considered as a whole, the present invention is directed to a no-frost refrigerator and method of controlling a no-frost refrigerator that controls de-humidification in

the no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification.

In stark contrast, the Kelly et al. reference very clearly is concerned with the completely unrelated problem of preventing fogging of the windglass of a vehicle.

The Kelly et al reference discloses a climate control system 10 for a vehicle that, inter alia, **increases** the blower motor speed of the blower motor 43 when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet 68 and onto the windglass 98 of the vehicle. Particularly, the Kelly et al reference discloses that **increasing** the blower motor speed control signal offset (BL_OFFSET) **increases** the commanded speed of the blower motor 43. The control system 10 also may **increase** the percentage of *outside air* admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72, and/or turn on the rear or side window defoggers 120. See, e.g., the Kelly et al reference at col. 2, line 46 to col. 3, line 4; and col. 4, lines 18-24, 52-56, and 65-67.

When properly considered as a whole, the subject matter of increasing the blower motor speed to defog the windglass of a vehicle logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification. Moreover, the vehicle climate control system for reducing or preventing fogging of the windglass of the vehicle of the Kelly et al. reference does not address any need or problem known in the field of no-frost refrigerators, and indeed, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification. Indeed, the Kelly et al. reference operates in a completely different manner from the present invention, and hence, teaches away from the claimed invention.

As shown in Figures 2 and 3 of the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. On the other hand, if the moisture value (e.g., humidity) **decreases**, then the present invention **increases** the circulation power of the fan to increase the heat flow between the chamber and the storage compartment, thereby reducing the cooling of the evaporator, which in turn reduces the drying of the air flowing past the evaporator. In this manner, the present invention controls de-humidification in a no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

Clearly, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in the speed of the blower motor 43 would reduce the cooling of the evaporator, which in turn would reduce the drying of the air flowing past the evaporator. Hence, the Kelly et al reference would <u>not</u> provide de-humidification when applied to a refrigeration device, as opposed to a windglass fog prevention system, and clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

Moreover, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in outside air provided by the blower motor 43 would only serve to

increase the moisture value of the air in the storage compartment. Hence, the Kelly et al. reference, when properly considered as a whole, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

For at least these reasons, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Kelly et al. reference does not qualify as analogous art.

The Response to Arguments of the final Office Action

The Response to Arguments of the final Office Action asserts that it is well known that defogging is essentially a process of dehumidifying the surface of the windglass. The Office Action asserts that, in this case, the Kelly et al. reference teaches that by increasing the blower speed one is capable of decreasing the humidity (BL offset - blower motor speed, **combined with the outside air AI offset**; col. 4, lines 18-24, 52-56 and 65-67). Emphasis added Appellant.

However, as explained above, Appellant respectfully submits that, when properly considered as a whole, the subject matter of increasing the blower motor speed to defog the windglass of a vehicle logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification.

As shown in Figures 2 and 3 of the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. On the

other hand, if the moisture value (e.g., humidity) **decreases**, then the present invention **increases** the circulation power of the fan to increase the heat flow between the chamber and the storage compartment, thereby reducing the cooling of the evaporator, which in turn reduces the drying of the air flowing past the evaporator. In this manner, the present invention controls de-humidification in a no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

Clearly, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in the speed of the blower motor 43 would reduce the cooling of the evaporator, which in turn would reduce the drying of the air flowing past the evaporator. Hence, the Kelly et al reference would <u>not</u> provide de-humidification when applied to a refrigeration device, as opposed to a windglass fog prevention system, and clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

Moreover, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, **<u>the increase in outside air provided by the blower motor 43 would only serve to increase the moisture value of the air in the storage compartment</u>**. Hence, the Kelly et al. reference, when properly considered as a whole, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

For at least these reasons, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Kelly et al. reference does not qualify as analogous art.

The Response to Arguments of the final Office Action also responds to Appellant's argument that the Kelly et al. reference is not capable of solving the problems as claimed, on pages 13-16 of the Amendment filed on January 7, 2010. The final Office Action asserts that "the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious [and that it] is well known in the art, for instance, in the freeze drying branch, that decreasing the humidity by lowering the temperature enables prevention of foodstuffs decay, and thus, the rejections over Whipple in view of Kelly remain."

Appellant respectfully notes, however, that the traversal arguments at pages 13-16 of the Amendment filed on January 7, 2010, are directed to the Kelly et al. reference being non-analogous art to the present invention. As explained above, to qualify as analogous art, a reference must either be (1) within the field of Applicants endeavor, or if not, (2) the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Hence, Appellant respectfully submits that these arguments are relevant to a determination of whether the subject matter logically would have commended itself to an inventor's attention in considering Appellant's invention as a whole.

Appellant respectfully submits that, for at least the reasons set forth above, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Kelly et al. reference does not qualify as analogous art.

Furthermore, even assuming *arguendo*, that the Kelly et al. reference would qualify as analogous art, Appellant respectfully submits that one of ordinary skill in the art would not have had an apparent reason to combine the disclosure of the Kelly et al. reference with disclosure of the Whipple, III reference to arrive at the claimed invention as a whole.

For example, as explained above, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle while avoiding unnecessarily abrupt or large deviations from the climate control setting otherwise in affect to minimize the disturbance perceived by the vehicle occupants. See, e.g., col. 5, lines 62-67. The Kelly et al reference is not capable of solving the problems solved by the present invention, and indeed, when considered as a whole, operates in a completely different manner than the present invention. Neither the Whipple, III reference nor the Kelly et al reference have anything to do with reducing drying out of stored foodstuffs by the de-humidification, and clearly would not have commended themselves to an inventor's attention in trying to find ways to solve these problems.

Moreover, the resulting combination of the Whipple, III reference and the Kelly et al reference would not disclose or suggest all of the features of the claimed invention.

For example, none of the applied references teaches or suggests the features of the claimed invention as recited, for example, by claim 22, which recites selecting said circulating power to be lower, the higher said estimated moisture value.

As explained above, as shown in Figures 2 and 3, in the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

For at least the foregoing reasons, neither the Whipple, III reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 21-23 and 26-32.

Appellant respectfully requests withdrawal of this rejection.

d. Claims 24 and 25 are NOT unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference, the Kelly et al. reference, and further in view of the Shima et al. reference.

Claims 24 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference, the Kelly et al. reference, and further in view of the Shima et al. reference.

Appellant respectfully traverses this rejection.

Neither the Whipple, III reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the features of independent claim 21, from which claims 24 and 25 depend. The Shima reference also does not make up for the deficiencies of these references, and indeed, is not relied upon for these features of claim 21.

Moreover, none of the applied references discloses or suggests the subject matter defined by claims 24 and 25.

For example, as explained above, the Shima et al. reference is silent with respect to whether the evaporator 13 is in an activation phase when the cabinet fan 18 is intermittently operated. As clearly shown in Figure 3, neither the compressor 14 nor the condenser 15 is in

an activation phase when the cabinet fan 18 is intermittently operated. Instead, both the compressor 14 and the condenser 15 are deactivated while the cabinet fan 18 is intermittently operated. As shown in Figure 2, the compressor 14 and the condenser 15 are part of the loop that includes the evaporator 13. Since the driving circuit 22 is in communication only with the compressor 14, it appears that the evaporator 13 also would be deactivated when the cabinet fan 18 is intermittently operated, as shown in Figure 3.

Hence, contrary to the assertions in the Office Action, the Shima et al. reference does not disclose or suggest controlling the operation of said evaporator and intermittently operating said fan during said activated phase of said evaporator, as recited in claim 24.

Appellant respectfully requests withdrawal of this rejection.

e. Claims 33 and 34 are NOT unpatentable under 35 U.S.C. § 103(a) over the Whipple, III reference, the Kelly et al. reference, and further in view of the Pesko reference (U.S. Patent No. 6,290,140).

Claims 33 and 34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference, the Kelly et al. reference, and further in view of the Pesko reference (U.S. Patent No. 6,290,140).

Appellant respectfully traverses this rejection.

None of the applied references discloses or suggests the subject matter defined by claims 33 and 34.

For example, none of the applied references discloses or suggests selecting said circulating power to be higher, the lower said estimated moisture value, as recited in claim 33, or wherein the control circuit decreases the circulation power of the fan during the activation phase of the evaporator when the estimated moisture value is greater than a moisture value constant, and increases the circulation power of the fan during the activation phase of the

evaporator when the estimated moisture value is less than the moisture value constant, as recited in claim 34.

Appellant respectfully submits that one of ordinary skill in the art would not have modified the Whipple, III reference in view of the Kelly et al. reference as alleged by the Office Action. Indeed, for the same reasons as set forth above, Appellant respectfully submits that the Kelly et al. reference may not be relied upon under 35 U.S.C. § 103 because the Kelly et al. reference is non-analogous art.

Furthermore, even assuming *arguendo*, that the Kelly et al. reference would qualify as analogous art, Appellant respectfully submits that one of ordinary skill in the art would not have had an apparent reason to combine the disclosure of the Kelly et al. reference with disclosure of the Whipple, III reference and the Pesko et al. reference to arrive at the claimed invention as a whole.

For example, as explained above, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle while avoiding unnecessarily abrupt or large deviations from the climate control setting otherwise in affect to minimize the disturbance perceived by the vehicle occupants. See, e.g., col. 5, lines 62-67. The Kelly et al reference is not capable of solving the problems solved by the present invention, and indeed, when considered as a whole, operates in a completely different manner than the present invention. Neither the Whipple, III reference nor the Kelly et al reference have anything to do with reducing drying out of stored foodstuffs by the de-humidification, and clearly would not have commended themselves to an inventor's attention in trying to find ways to solve these problems.

Moreover, the resulting combination of the Whipple, III reference and the Kelly et al reference would not disclose or suggest all of the features of the claimed invention.

For example, none of the applied references teaches or suggests the features of the claimed invention as recited, for example, by claim 33, which recites selecting said circulating power to be lower, the higher said estimated moisture value.

As explained above, as shown in Figures 2 and 3, in the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

Additionally, Appellant respectfully submits that the Office Action may not rely upon the Pesko et al. reference under 35 U.S.C. § 103 because the Pesko et al. reference is non-analogous art.

In the Response to Arguments, the Advisory Action asserts that the Pesko et al. reference teaches a method for managing the energy usage of a controlled space, based on occupancy, which is analogous to an air conditioned vehicle cabin or a refrigerator or any similar air temperature controlled system. Additionally, the Advisory Action asserts that the Pesko et al. reference allegedly clearly teaches that it has been determined that more moisture is removed from the air when the fan is operated at a low speed than when it is operated at a high speed. Thus, the Advisory Action asserts that, in accordance with the present invention the speeds of the individual fans are optimized in order to optimize the air flows over the various coils of the independently controlled spaces 135 (citing col. 12, lines 58-60).

To qualify as analogous art, a reference must either be (1) within the field of Applicants endeavor, or if not, (2) the subject matter logically would have commended itself

to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Appellant respectfully submits that the Pesko et al. reference clearly is not within the field of Appellant's endeavor.

In the present instance, the field of Appellant's endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, NOT simply any climate control system.

In stark contrast, the Pesko et al. reference is within the completely different and unrelated field of energy management systems for buildings, such as hotels, having a plurality of individually controlled spaces. See, e.g., col. 1, lines 6-9.

The field of endeavor of energy management systems for buildings having a plurality of individually controlled spaces clearly is different from the field of endeavor of no-frost refrigerators. Appellant respectfully submits that one of ordinary skill in the art would consider the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, to be in a completely different field of endeavor than energy management systems for buildings having a plurality of individually controlled spaces.

For at least the foregoing reasons, the Pesko et al. reference clearly is not within the field of Appellant's endeavor.

As set forth above, a reference that is not within the field of Appellant's endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Pesko et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole.

Properly considered as a whole, the present invention is directed to a no-frost refrigerator and method of controlling a no-frost refrigerator that controls de-humidification in

the no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification.

In stark contrast, the Pesko et al. reference very clearly is concerned with the completely unrelated problem of energy management systems for buildings having a plurality of individually controlled spaces.

The Pesko et al. reference discloses an energy management system for buildings, such as hotels, having a plurality of individually controlled spaces that takes into account time of day, day of week, month, season, ingress, egress, window opening/closing, change in status, occupancy state, ambient noise level, light level, energy consumption, temperature drift rate and direction, humidity, environment or weather, etc, in performing the control functions. See, e.g., col. 1, lines 48-58.

When properly considered as a whole, the subject matter of energy management systems for buildings having a plurality of individually controlled spaces logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification. Moreover, the energy management systems for buildings having a plurality of individually controlled spaces of the Pesko et al. reference does not address any need or problem known in the field of no-frost refrigerators, and indeed, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification. Indeed, the Pesko et al. reference operates in a completely different manner from the present invention, and hence, teaches away from the claimed invention.

For at least these reasons, the subject matter of the Pesko et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Pesko et al. reference does not qualify as analogous art.

For at least the foregoing reasons, neither the Whipple, III reference, the Kelly et al. reference, nor the Pesko et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 33 and 34.

Appellant respectfully requests withdrawal of this rejection.

f. Claims 35 and 36 are NOT unpatentable under 35 U.S.C. § 103(a) the Whipple, III reference and the Pesko reference.

Claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference and the Pesko reference.

Appellant respectfully traverses this rejection.

First, for at least the foregoing reasons, the Pesko et al. reference clearly is not within the field of Appellant's endeavor. Moreover, the subject matter of the Pesko et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole.

Second, even assuming in arguendo that the Pesko et al. reference is analogous art to the present invention, Appellant respectfully submits that one of ordinary skill in the art would not have had an apparent reason to combine the teachings of the Whipple, III reference with the energy management systems for buildings having a plurality of individually controlled spaces of the Pesko reference to arrive at the claimed invention.

For at least the foregoing reasons, neither the Whipple, III reference nor the Pesko et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 35 and 36.

Appellant respectfully requests withdrawal of this rejection.

(8) CONCLUSION

In view of the foregoing discussion, Appellant respectfully requests reversal of the Examiner's rejections.

Respectfully submitted,

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CLAIMS APPENDIX

1 – 11 Canceled

12. (Rejected) A no-frost refrigeration device, comprising:

at least one storage compartment;

an evaporator which is alternately activated and deactivated located in a chamber separated from said storage compartment;

a fan for circulating air between said storage compartment and said evaporator chamber; and

a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

13. (Rejected) The no-frost refrigeration device according to claim 12, including said fan can be switched off temporarily during said activated phase of said evaporator.

14. (Rejected) The no-frost refrigeration device according to claim 13, including said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan during said activated phase of said evaporator.

15. (Rejected) The no-frost refrigeration device according to claim 14, including a selector switch on which a duty cycle can be set for said intermittent operation of said fan.

16. (Rejected) The no-frost refrigeration device according to claim 14, including said control circuit coupled to at least one air conditioning sensor that records the at least one air conditioning parameter and said control circuit regulates a duty cycle as a function of the at least one air conditioning parameter recorded by said sensor.

17. (Rejected) The no-frost refrigeration device according to claim 12, including said activation phase of said evaporator and said fan can be set to different non-zero speeds.

18. (Rejected) The no-frost refrigeration device according to claim 17, including said control circuit for controlling the operation of said evaporator and said fan is set to operate said fan at one of a plurality of selectable non-zero speeds when said evaporator is activated.

19. (Rejected) The no-frost refrigeration device according to claim 18, including a selector switch on which a speed for operation of said fan can be set.

20. (Rejected) The no-frost refrigeration device according to claim 18, including said control circuit coupled to at least one air conditioning sensor that records the at least

one air conditioning parameter and said control circuit regulates the speed of said fan using the at least one air conditioning parameter recorded by said sensor.

21. (Rejected) A method for operating a refrigeration device, including

at least one storage compartment;

an evaporator which is alternately activated and deactivated located in a chamber separated from said storage compartment;

a fan for circulating air between said storage compartment and said evaporator chamber;

a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator, comprising the steps of:

a) estimating a moisture value in said storage compartment;

b) selecting a circulating power for said fan as a function of said estimated moisture value; and

c) operating said fan at said selected circulating power.

22. (Rejected) The method according to claim 21, including selecting said circulating power to be lower, the higher said estimated moisture value.

23. (Rejected) The method according to claim 21, including switching said fan off temporarily during said activated phase of said evaporator.

24. (Rejected) The method according to claim 21, including controlling the operation of said evaporator and intermittently operating said fan during said activated phase of said evaporator.

25. (Rejected) The method according to claim 21, including sensing at least one air conditioning parameter and regulating a duty cycle as a function of at least one sensed air conditioning parameter.

26. (Rejected) The method according to claim 21, including setting said activation phase of said evaporator and said fan to different non-zero speeds.

27. (Rejected) The method according to claim 21, including controlling the operation of said evaporator and said fan and operating said fan at one of a plurality of selectable non-zero speeds when said evaporator is activated.

28. (Rejected) The no-frost refrigeration device according to claim 12, wherein the at least one air conditioning parameter is a moisture value of one of ambient air and air in the at least one storage compartment.

29. (Rejected) The no-frost refrigeration device according to claim 12, wherein the at least one air conditioning parameter is an estimated moisture value of one of ambient air and air in the at least one storage compartment.

30. (Rejected) The no-frost refrigeration device according to claim 12, wherein the at least one air conditioning parameter is one of a temperature of ambient air outside the no-frost refrigeration device, a humidity of the ambient air outside the no-frost refrigeration device, and a humidity of air in the at least one storage compartment.

31. (Rejected) The no-frost refrigeration device according to claim 12, wherein the control circuit makes the average circulation power of said fan variable during the activation phase of said evaporator based on the at least one air conditioning parameter and a predefined target value of a humidity of air in the at least one storage compartment.

32. (Rejected) The method according to claim 21, wherein the circulating power for said fan is selected as the function of said estimated moisture value and a predefined target value of a humidity of air in the at least one storage compartment.

33. (Rejected) The method according to claim 21, including selecting said circulating power to be higher, the lower said estimated moisture value.

34. (Rejected) The method according to claim 21, wherein the control circuit decreases the circulation power of the fan during the activation phase of the evaporator when the estimated moisture value is greater than a moisture value constant, and increases the circulation power of the fan during the activation phase of the evaporator when the estimated moisture value is less than the moisture value constant.

35. (Rejected) The no-frost refrigeration device according to claim 12, wherein the control circuit decreases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is greater than a moisture value constant.

36. (Rejected) The no-frost refrigeration device according to claim 12, wherein the control circuit selectively decreases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is greater than a moisture value constant, and increases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is less than the moisture value constant.

EVIDENCE APPENDIX

None

RELATED APPEALS APPENDIX

None